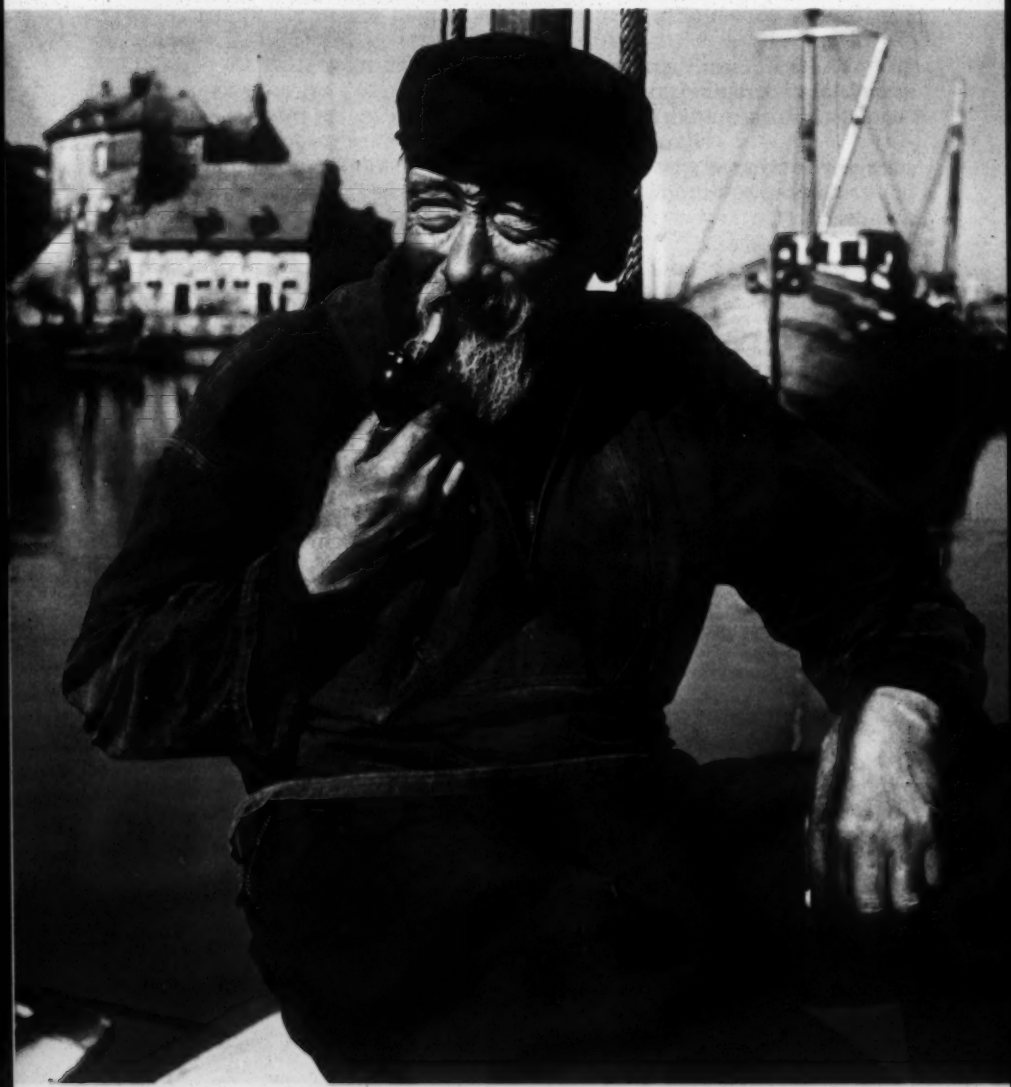
GEOGRAPHIC SCHOOL BULLETINS

THE NATIONAL GEOGRAPHIC SOCIETY, WASHINGTON 6, D.C.

FEBRUARY 29, 1960, VOLUME 38, NUMBER 20 . . . *To Know This World, Its Life*



HOWELL WALKER, NATIONAL GEOGRAPHIC STAFF

NORMAN FISHERMAN checks the weather before sailing into the English Channel

NORMANDY—*France's Province of Plenty*

also—LEMMINGS, CALENDARS, INDEX 229

UMI

GSB MAP

the area, returned last year. He describes a picnic in the heart of the true and timeless Normandy:

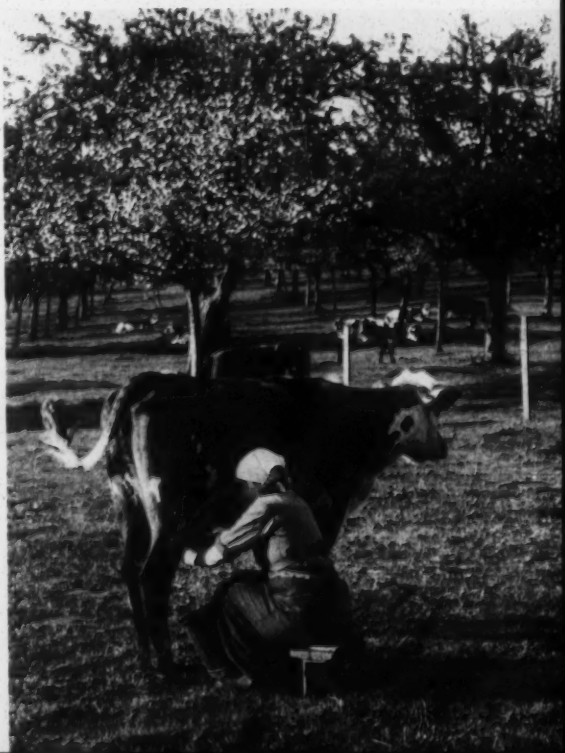
"On a grassy hill in the sun we ate bread baked that morning and a round of Camembert cheese at its creamy best.

"Below us a church spire rose above a comfortable clutch of half-timbered houses. Around us tumbled the loveliest part of the Pays d'Auge. The air was softly fragrant and pleasantly warm. . . . A bell rang out at noon, mingling its music with school children's laughter. Bees hummed over the food before us. Cuckoos called from trees feathery with young leaves."

The first Normans were not Frenchmen at all, but Scandinavians, and pirates at that. Sailing their beaked long ships up the Seine, these Northmen—from which we get the word Normans—lost their hearts to the pleasant climate and countryside.

They stayed. They made Rouen the seat of their duchy in 911. From their first duke, Rollo, descended France's Norman dukes and Crusaders, and, through William the Conqueror, English kings. By 1066 Normandy was muscular enough to cross the channel and master England.

For the next 138 years Normandy remained for the most part united with England under Norman kings and their descendants. Then in 1204 King John, the great-great-grandson of William, lost the province, and Normandy reunited with France. The union was permanent except for a short period during the Hundred Years' War which ended in 1453. From then on peace blessed the Norman countryside most of the time until World War II left yawning holes where towns had stood and soldiers' graves where green turf once flowed unbroken.



Today, apple trees bloom (right) in a quiet orchard while cows graze their fill under a balmy sun and the farmwife takes the daily milk from one of the gentle beasts. Across the province, towns bloodily familiar to armies have healed their wounds — Saint Lô, Dieppe, Caen, Le Havre, Cherbourg. . . .

A special "train of pleasure" brought 1,500 persons to Cherbourg on June 19, 1864, to watch a round of the American Civil

UMI

Normandy Erases War's Scars

Photographs by Howell Walker, National Geographic Staff

GENTLY THE SUN caresses the white chalk cliffs of Normandy beside the English Channel. Only the wind and waves, slowly carving the silent rock, disturb the peace of the shoreline. Life has returned to normal in this idyllic French province.

Sixteen Junes have greened the lush Norman pastures and hung the apple trees with fruit since that decisive June, 1944, when Allied troops scaled cliffs like the ones above and began the liberation of Western Europe from the Nazi stranglehold.

Today tall buildings lance the sky where bombs and shells gouged out holes in the earth. Goods from around the world enter bustling channelside ports. The potters' wheels of Noron la Poterie spin as usual. Alençon makes its world-famous lace. For the fisherman of Honfleur on the cover, the fighting of the French underground and the smuggling out of Allied airmen are only memories. Parisians week-end again at beach towns under the sheltering cliffs.

Normandy is about the size of Maryland and Delaware combined, a rich province stretching from the English Channel toward Paris. Regular rain gives lush pastures and orchards, pouring out a cornucopia of milk, butter, cheeses, beef, and apples.

The farmlands, unchanged by their days as battlefields, have led the province back toward normal. Seaports and factories have added their wealth. Except for the replacement of wrecked buildings and a *tristesse*, an ache in the memory, Normandy resembles the Normandy of prewar days.

Howell Walker, a *National Geographic* writer-photographer long familiar with

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The streets echo the sounds of stonecutters, carpenters, and ironmongers putting the cathedral together again. Docks are crowded with ocean-going vessels flying the flags of many countries. Textile mills, tanneries, foundries, oil refineries, and railways mark Rouen's industrial importance.

A favorite residence of William the Conqueror, Caen used an abbey he built as an air raid shelter. Its 15th-century university has been rebuilt. New blast furnaces and foundries boost the city's output of metals. New boulevards and parks give a fresh, shiny face.

The great white cliffs of the Normandy shoreline fall away at the suburbs of Le Havre. In 1945 it won the unenviable title of France's most gravely damaged port. Bombs and shells wiped out some 12,000 buildings, damaged 5,000 others, and left 40,000 people homeless.

Little sign of the destruction remains. Completely restored, the port is busier than ever. Tall modern buildings overlook the new harbor where big ocean liners whistle. Tankers, barges, tugs, and freighters crowd the docks.

Amid new growth, traditions remain. Since Roman times, Normans have relished snails. The innkeeper above prepares some for dinner. With plenty of butter, garlic, and herbs, each snail is packed in a clean, empty shell. Twelve of them, served sizzling hot, make a memorable dish. The pan in the lower right hand corner holds lobsters.

Mementos of medieval glory spot the countryside. A fortress of Richard the Lion Hearted, reared in 1196, stands in magnificent ruin on a bank of the Seine near Les Andelys. Two-wheeled, horse-drawn carts carry whole families to such weekly markets as the one at Verneuil, below.

An alert monk, riding his bicycle to inform the Allies that only a token force of Germans occupied Bayeux, saved the medieval city. Today's children learn to make the exquisite lace that once graced queens and their palaces. And the famous Bayeux Tapestry, depicting the Conquest of England, remains the town treasure.

At the southwest corner of Normandy rises Mont St. Michel, world renowned abbey built in the 11th century by Benedictine monks. The Archangel Michael appeared to the Bishop of Avranches and ordered him to build on a huge coastal rock where Normandy and Brittany meet.

Monks planted the foundation on the narrow ridge of the rock's summit—an architectural triumph akin to adding a building to the peak of the Washington Monument. Untouched by shell or bomb, Mont St. Michel stands as a monument to Normandy's devotion and endurance. L. B.

UMI

War. The Yankee *Kearsarge* and the Confederate *Alabama* battled each other off the Norman coast until the Northerners trounced the rebels. World War II brought little pleasure in its train, and the rebuilt quays and bright new hotels of the bustling port hide grim memories.

Fresh buildings line the streets of Saint Lô. A new 11-story hospital, built by the French government and American contributions, stands on the outskirts of town.

The old port of Dieppe thrives. Cross-channel ships ply in and out. Freighters unload tons of bananas from the Antilles or Canaries and varied cargoes from the rest of the world.

Fishing boats dock alongside stone quays. The fishmonger, handsome in her business-as-usual smile, sits beside boxes of *langoustines*, shrimp, spider crabs, scallops, squid, and mussels.

Rouen (above), capital of Upper Normandy, is an industrial center and port on the Seine. Its 13th-century cathedral (at right in the picture), once the target of crossbow arrows, was blasted and burned by bombs.

Alongside its modern buildings and new industries lies medieval Rouen, with narrow cobbled streets trod by Joan of Arc as she went to her execution in 1431. A great clock, built in 1527, ticks the hours.

the tundra. Fox and hawk must turn to other food. Thus, the arctic hares, ptarmigans, terns, gulls, and ravens are hunted heavily. Few birds are able to nest successfully. Many animals starve. The snowy owl and the rough-legged hawk move farther south. The fox trails the polar bear and eats the scraps of his seal. Caribou, which normally share the lemmings' food supply, grow thin. The trapper faces a lean year and his village may have to move to better hunting grounds.

Meanwhile, the remaining lemmings are again homesteading. They carve out ground-level chambers and runways beneath the snow, and line them with insulating moss and grass. Runways usually end at a natural feeding station—a clump of lichens or moss. As they eat through one such clump they tunnel to another.

Above the snow, enemies watch hopefully. Sometimes a careless lemming digs himself out of his protective snowdrift and his path runs across open land. Heavy winds may crush his igloo-like home, and he wanders confused. Sometimes, just curious, a lemming pokes his head through the top of his snow city (below).

When spring comes and the lemming's winter quarters melt, he burrows underground and builds his rooms and tunnels just above the permafrost—permanently frozen soil 6 to 18 inches beneath the tundra surface. An ambitious lemming may even carve out a tiny hole in the solidly frozen ground. A hungry fox can easily dig into the surface layer, but he finds it very hard to extract prey from a niche in the permafrost.

Spring is dangerous for lemmings. If snow melts before the top layer of ground thaws, digging a new home is slow and painstaking. Floods may force a movement to higher ground. Short compared with the long march, such trips are just as hazardous, foot for foot. L.M.

S. D. MACDONALD, NATIONAL MUSEUM OF CANADA

UMI

PAINTING BY LOUIS AGASSIZ FUERTES

Crowding Sparks Lemming Flight

FAT AND HEALTHY, the lemming rests beside his burrow, enjoying the short arctic summer. For his clan things are going well—too well.

There are plenty of plants to eat, and the five-inch, mouselike animals multiply quickly. They devour the vegetation.

Soon food is scarce and the colony overcrowded. Disease sets in. A frenzied lemming crawls from his chamber and scurries away. Another follows.

By hundreds, then by millions, lemmings swarm across the land. Driven by hunger and the frustrations of overcrowding, they set off, all running in the same direction. They scurry off cliffs and drop into crevices. They swim streams and lakes in their path, even though some drown and hundreds are eaten by fish.

Away from their underground homes, lemmings are easy prey. Hungry enemies—wolf, fox, snowy owl, raven, hawk—join the migration.

Despite perils the lemmings move on, eating their way across the tundra —the desolate rocky plain of mosses and lichens.

In Scandinavia, they run from the mountains onto coastal lowlands, ravaging farmers' fields as they cross. A lemming does not go around a haystack; he eats through it. In northern Siberia, a village once had to radio for help during a lemming invasion. The villagers were evacuated by air.

Thousands of lemmings survive their overland trek only to reach an ocean. As if it were just another stream, they plunge in and start swimming. In the end, overcome by exhaustion, they freeze or drown. In "crash" years, lemmings have been seen swimming far at sea, scrambling across ice floes, or frozen into the ice by hundreds.

It is usually in Norway that the brown lemmings march to the sea. Lemmings of the wide flatlands, like those in Alaska and Northwest Canada, are less apt to find the ocean barring their trail.

Every four to seven years the lemmings must move or starve. Most of the millions that migrate are killed by predators, accident, exhaustion, or drowning. The lemmings that do not migrate and a few that settle by the wayside begin the cycle anew.

In the year following a lemming "crash" there is increased hardship on

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minutes, 24 seconds short. So, the calendar was a bit too long for the year, by

close to 18¾ hours a century. Between 46 B.C., when Caesar tidied things up, and the 16th century, the difference had grown to 10 days.

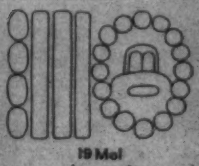
Under the authority of Pope Gregory XIII a new calendar was worked out. First those 10 days were simply dropped. The day after October 4, 1583, was October 15. Then it was arranged that leap years should be omitted three times in four centuries. The calendar is still long—but only by 26 seconds. It will take 3,323 years for that to total one day.

The Gregorian calendar, for all its advantages, was not adopted throughout the West for some time. Protestant Britain didn't accept this Papist change until 1752. Since Virginia and the rest of the North American colonies were then under British control, we discover that George Washington was not born on February 22 after all. He was born February 11 —but changed his birthday because the new style calendar dropped 11 days.

The Egypt-Greek-Rome axis was not the only originator of calendars. Everywhere that civilization lifted its head, men worked out ways of measuring the years. One of the most elaborate, and one of the most accurate, was the Maya calendar, developed in Mexico's Yucatán. When the conquering Spaniards arrived they were astonished to find that Mayan astronomers had a solar calendar correct to within 10 days of the European—and the error was made, as we have seen, by the Europeans.

The Maya used the elaborate glyphs shown at left, and a numerical grouping of bars and dots. A National Geographic Society expedition uncovered the inscribed stone, below, near Veracruz, Mexico. Its markings translate as November 4, 291 B.C., making it the oldest dated work of man ever found in the New World.

F. S.



RICHARD H. STEWART, NATIONAL GEOGRAPHIC STAFF

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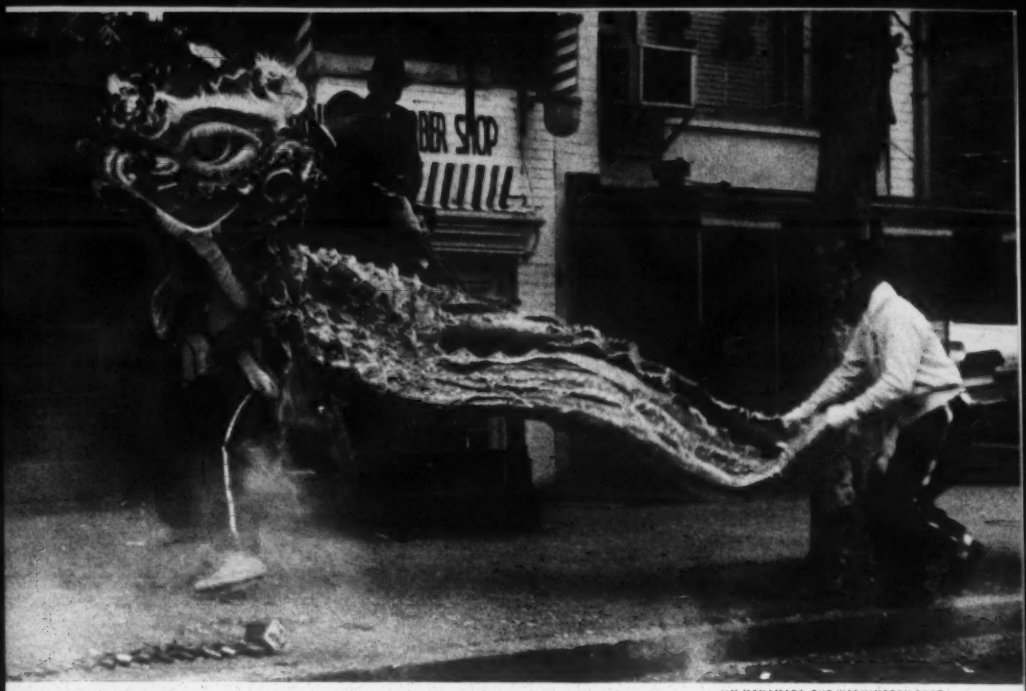

JIM MCNAMARA, THE WASHINGTON POST

Why the Year LEAPS

WELL, THE SUN finally caught up with us. We had to hold still 24 hours to let it happen, but the results are worth it. On this day, February 29, our calendar makes allowance for the awkward fact that it takes Earth not 365 but 365¼ days to whirl once around the sun. Once every four years we add an extra day, February 29th, making a leap year, and using up those fractions of time.

If we didn't stuff them in somewhere our year would slowly go awry. Over the decades, the seasons would shift, and future earthlings might find December the hottest month, while snows would blanket the land in May. We like our seasons more dependable than that.

This reversal of the seasons did happen to the ancient Romans. Because of repeated juggling of the calendar (often to gain more taxes or to lengthen time for paying debts, etc.), March had become a summer month, and September a winter one.

One of the troubles was the moon. The seasons change as we spin around the sun, but from ancient times we counted the months by the phases of the moon. Moon-measured months are 29½ days long. You can't fit them evenly into the 365¼-day year. Some calendars, including the Mohammedan, the Jewish, and the Chinese, remain lunar. So Washington's Chinatown celebrates its New Year (currently the Year of the Rat) with firecrackers and lion dances (above) on a different date each year.

The moon-regulated Hebrew calendar was taken over by the early Christians, and gives us our "movable feasts" such as Easter, which can fall on any date between March 22 and April 25.

From the Roman chaos, Julius Caesar, with the guidance of an Egyptian astronomer, worked out the solar calendar and instituted leap days each four years. Things would have been perfect if that quarter day were exact. But it is 14 minutes, 24 seconds short. So, the calendar was a bit too long for the year, by

TAY AND LOWELL THOMAS, JR.

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